



Golden Gate National Recreation Area

Implementing ITS on a Small Scale:

Can it really be this complicated?

Golden Gate's ITS Pilot Project



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“All we’re doing is putting two
signs out on the highway!
What’s taking so long?”



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The Park in Brief

- 74,000 acres
- San Francisco, San Mateo, Marin Counties
- 14 million visitors

Estimated visitation to Marin Park sites (2000):

Muir Woods: 840,000

Stinson Beach: 510,000

Muir Beach: 430,000





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- This is the problem we're trying to solve:

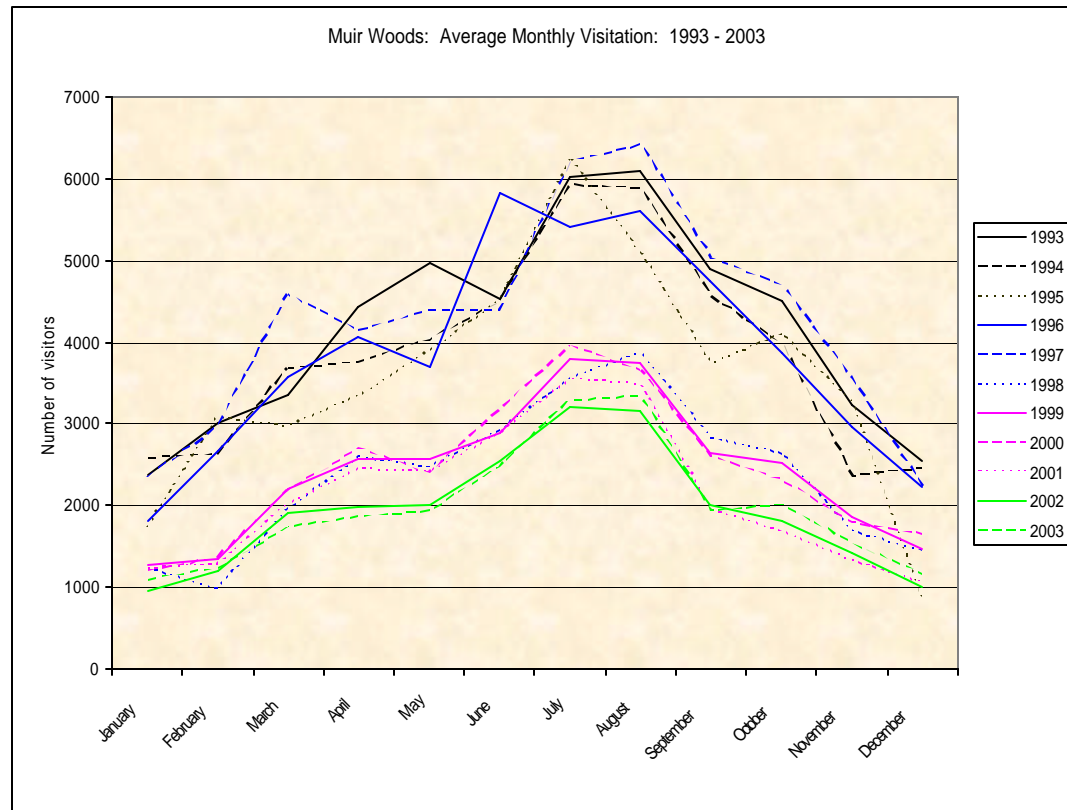




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Congestion at Marin Park Sites has several causes:

- Peaks in visitation



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Parking at sites cannot meet peak demand

Muir Woods

Capacity	179
Peak demand	450



Stinson Beach

Capacity	839
Peak demand	1050





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- **Access to park sites by means other than the car is limited**
 - No public transit to Muir Woods
 - Private bus service widely available, all year
 - Weekday public transit service to Muir Beach, Stinson is minimal
 - Weekend service to Stinson is minimal and seasonal only

(Note: Alternative transportation programs are being considered under the CTMP.)



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Effects of peak-season traffic & parking congestion

- *Poor visitor experience

- ♣ Frustrating drive, and no parking at site
- ♣ Roadside parking creates unsafe conditions

- *Impacted community

- ♣ Congested roads in semi-rural or rural areas
- ♣ Visitors park in neighborhoods, block roads/driveways



Visitors and cars on narrow, rural roads

Visitors do not choose the best parking spaces





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Additional effects

- *Ongoing natural resource degradation

- ♣ Existing parking lots are not ecologically sound
- ♣ Roadside parking disturbs sensitive areas

- *Emergency services

- ♣ EMS staff cannot reach remote areas by congested roads
- ♣ Airlifts are more frequent, even for non life-threatening injuries

Walking from informal parking areas causes erosion



Emergency airlift at Stinson Beach



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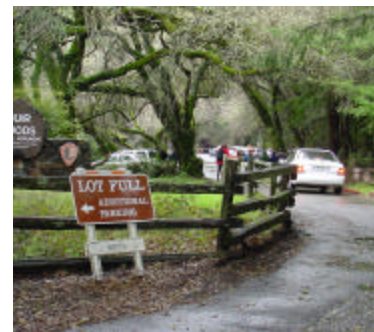
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Existing tools to lessen congestion problem

- *Manually operated signs (on SR 1)
 - ♣ Labor intensive
 - ♣ Staffing constraints make them difficult to deploy
 - ♣ Only limited information can be conveyed
- *“Parking full” signs (at sites)
 - ♣ Manage expectations once at site, but
 - ♣ Do not catch visitors early enough to change visitation plans
 - ♣ Visitors become creative, parking wherever they can



“Stone-Age ITS”





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Q: What is the ITS Pilot Project?

A: An experiment.

In brief:

1. Two portable changeable message signs (PCMS) will be placed on US 101, near the State Route 1 interchange.
2. Peak visitation season (April through September) 2005
3. One sign will be directed at traffic heading north, and the other will be directed at traffic traveling south.
4. Field staff from GGNRA and partner agencies will monitor conditions and request USPP Dispatch to activate the signs when needed.
5. Dispatch will activate the signs via telephone to display pre-programmed messages to the general public. As conditions change, Dispatch will switch messages or deactivate the signs.

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Anticipated benefits of PCMS

- Satisfies strong community support for low-cost, low-impact solutions, with measurable results
- *Able to convey real-time information as conditions change
- *Centralized management allows field personnel to move around and patrol instead of programming signs in the field
- *Allows visitors to make more informed decisions about their plans
- *Alleviates park staff frustration by forewarning visitors about crowded conditions
- *Alleviates traffic & parking congestion by encouraging visitors not to come during peak times
- *Fosters multi-agency cooperation efforts
- *Introduces new, creative ideas to park and partner agency staff



*Multi-agency
planning
session*



*PCMS training
session*

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Complications

*Balancing the needs and goals of multiple agencies

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- *Project partners:*
 - *National Park Service (GGNRA)*
 - *Law Enforcement, Interpretation, Planning*
 - *United States Park Police—Dispatch office*
 - *California Department of Transportation*
 - *Operations, Maintenance, Office of Innovation*
 - *California Highway Patrol*
 - *California State Parks*
 - *County of Marin*
 - *Emergency Services, Planning, Sheriff's Office*
 - *Western Transportation Institute*



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Complications

*Balancing the needs and goals of multiple agencies

PCMS must

♣Lessen congestion at parking sites and on roads to sites

Without

- ♣Simply moving congestion elsewhere in the county
- ♣Deterring visitors entirely from visiting
- ♣Confusing visitors who are unfamiliar with the area
- ♣Causing slowing and crashes on US 101
- ♣Negatively impacting areas economically dependent on tourism



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Other Complications

- Introducing new technology to unfamiliar staff
- * Defining GGNRA's own internal goals for project
- * Defining the planning steps involved
- * Approving and processing permits, MOUs, and other paperwork



*This is not an
approved message!*



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Lessons Learned

•Sign technology

- *Solar powered, cell-capable signs eliminate need for additional infrastructure, allow for remote operations, promote sustainable solutions
- *Signs should permit automatic time-out of messages
- *Signs can be a pleasing color or design
- *Understand limitations of changeable message signs

•Operations

- *Centralize operations through a dispatch office
- *Identify clear roles and responsibilities for personnel involved
- *Develop prioritization scheme for messages



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More Lessons Learned

•Planning an ITS Project involves

- * Paperwork
 - *Memorandum of Understanding
 - *Encroachment permit for state ROW
- * Location scouting & evaluation
- * Message development/approval
 - *Setting up cell phone service to signs
- * Creating an Operational Guide
 - *Preparing evaluation criteria
- * Training
- ~Review of all of the above by partner agencies~
- * Scheduling implementation and evaluation





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- Status of project
 - Deployment planned for April 2005
 - Evaluation planned for Fall 2005
 - Looking at additional ITS strategies



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- Conclusion
 - Despite the complications, this project has been a model of inter-agency cooperation!

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